

## **Goal 8: Sound Science, Improved Understanding of Env. Risk and Greater Innovation to Address Env. Problems**

EPA will develop and apply the best available science for addressing current and future environmental hazards as well as new approaches toward improving environmental protection.

### ***Background and Context***

EPA has a responsibility to ensure that efforts to reduce potential environmental risks are based on the best available scientific information. Strong science allows us to identify the most important sources of risk to human health and the environment as well as the best means to detect, abate, and avoid possible environmental problems, and thereby guides our priorities, policies, and deployment of resources. It is critical that research and scientific assessment be integrated with EPA's policy and regulatory activities. In order to address complex issues in the future, the Agency will design and test fundamentally new tools and management approaches that have potential for achieving environmental results. Under Goal 8, EPA conducts core research to improve our understanding of the fundamental principles underlying risk assessment and risk management.

Several mechanisms are in place to ensure a high-quality research program at EPA. The newly established Science Advisor will be responsible for ensuring the availability and use of the best science to support Agency policy and decisions, as well as advising the EPA administrator on science and technology issues and their relationship to Agency policies, procedures and decisions. The Research Strategies Advisory Committee (RSAC) of EPA's Science Advisory Board (SAB), an independent chartered Federal Advisory Committee Act (FACA) committee, meets annually to conduct an in-depth review and analysis of EPA's Science and Technology account. The RSAC provides its findings to the House Science Committee and sends a written report on the finding to EPA's Administrator after every annual review. Also, under the Science to Achieve Results (STAR) program all research projects are selected for funding through a rigorous competitive external peer review process designed to ensure that only the highest quality efforts receive funding support. In addition, EPA's scientific and technical work products must undergo either internal or external peer review, with major or significant products requiring external peer review. The Agency's Peer Review

Handbook (2<sup>nd</sup> Edition) codifies procedures and guidance for conducting peer review.

Today's environmental innovations extend beyond scientific and technological advances; they also include new policies and management tools that respond to changing conditions and needs. Examples include market-based incentives that provide an economic benefit for environmental improvement, regulatory flexibility that gives companies more discretion in how specific goals are met, and disclosure of information about environmental performance. As a result of these and other innovations, the nation's environmental protection system is evolving. EPA's focus is on creating a system that is more efficient and effective and more inclusive of all elements of society.

### ***Means and Strategy***

EPA is continuing to ensure that it is a source of strong scientific and technical information, and that it is on the leading edge of environmental protection innovations that will allow achievement of our strategic objectives. The Agency consults a number of expert sources, both internally and externally, and uses several deliberative steps in planning its research programs. As a starting point, the Agency draws input from the draft Ecosystem Protection Multi-year Plan, the EPA Strategic Plan, available research plans, EPA program offices and Regions, Federal research partners, and outside peer advisory bodies such as the Science Advisory Board (SAB) and others. Agency teams that prioritize research areas by examining risk and other factors such as National Science and Technology Council (NSTC) research, involved with development priorities, client office priorities, court orders, and legislative mandates use this input internally. EPA's research program will increase our understanding of environmental processes and our capability to assess environmental risks to both human health and ecosystems.

In the area of ecosystem protection research, EPA will strive to establish baseline conditions from which changes, and ultimately trends, in the ecological condition of the Nation's aquatic ecosystems can be confidently documented, and from which the results of environmental

management policies can be evaluated at regional scales. This ability to demonstrate success or failure of increasingly flexible watershed management policies, regionally and nationally, is of great importance. Also in FY 2004, EPA's ecosystem protection research methods will continue to focus on Environmental Monitoring and Assessment Program (EMAP), which includes the National Coastal Assessment (Coastal 2000), Western EMAP, Central Basin, work in landscape ecology, and programs to develop and refine environmental indicators. These programs will provide water resource managers with tools necessary to measure status and trends in the condition of the Nation's rivers, streams, and estuaries and to measure the impacts of management decisions. This work is an important step toward providing the scientific understanding to measure, model, maintain, and restore the integrity and sustainability of ecosystems.

The Agency's leadership role in protecting both human and ecosystem health requires that the Agency continue to be vigilant in identifying and addressing emerging issues. EPA will continue to enhance its capabilities to anticipate, understand, and respond to future environmental developments. EPA will address these uncertainties by conducting research in areas that combine human health and ecological considerations. Continued research in the areas of endocrine disrupting chemicals and mercury is leading toward the development of improved methodologies for integrated human health and environmental risk assessment and sound approaches for risk management. While EPA has long benefited from studies needed to reduce, refine, and replace test methods, the Computational Toxicology program will enable EPA to demonstrate how to reduce the cost and use of animal testing to a far greater extent by prioritizing data requirements. In FY 2004, EPA will develop a computational toxicology research strategy that will help fill major data gaps for a large number of chemicals for testing programs and reduce the cost and use of animal testing. This work will improve the validity of existing and proposed chemical testing programs through computational toxicology research, which integrates modern computing with advances in genomics to develop alternatives to traditional animal testing approaches. EPA will also conduct research to enhance its capacity to evaluate the economic costs and benefits and other social impacts of environmental policies. These efforts, undertaken in concert with other agencies, will result in improved methods to assess economic costs and benefits, such as improved economic assessments of land use policies and improved assessments for the valuation of children's health, as well as other social impacts of environmental decision-making.

The Agency also seeks to characterize, prevent, and clean up contaminants associated with high-priority human health and environmental problems through the development and verification of improved environmental tools and technologies. EPA will incorporate a holistic

approach to pollution prevention by assessing the interaction of multiple stressors that may threaten human health and environmental quality, and by developing cost-effective responses to those stressors. Research will also explore the principles governing sustainable systems and the integration of social, economic, and environmental objectives in environmental assessment and management. Emphasis will be placed on developing and assessing preventive approaches for industries and communities having difficulty meeting pollution standards. In a broader context, the pollution prevention research program will continue expanding beyond its traditional focus on the industrial sectors to other sectors (e.g., municipal) and ecosystems.

In FY 2004, EPA will improve its regulatory and policy development process. The Agency will strengthen the policy analysis and use of science supporting key regulatory and non-regulatory actions, improve the economic analysis underlying Agency actions, and improve the regulatory and policy action information management system.

EPA is continuing to ensure that it is a source of sound scientific and technical information, and that it is on the leading edge of environmental protection innovations that will allow achievement of our strategic objectives. Also, in FY 2004, EPA is requesting resources for the newly established Science Advisor. The Science Advisor will be responsible for ensuring the availability and use of the best science to support Agency policies and decisions, as well as advising the EPA administrator on science and technology issues and their relationship to Agency policies, procedures, and decisions. The Science Advisor's office will require a small cadre of senior staff to promote effective partnerships with EPA Programs and Regions, assist them in their efforts to strengthen environmental science, and provide for timely and open communication on critical science matters. In addition, the Agency consults a number of expert sources, both internal and external, and uses several deliberative steps in planning its research programs. As a starting point, the Agency draws input from the EPA Strategic Plan, available research plans, program offices and Regions, Federal research partners, and outside peer advisory bodies such as the Science Advisory Board (SAB) and others. The Agency is also taking a number of steps to attract and maintain a high quality, diverse scientific workforce. EPA will explore using existing personnel authority or seek new authority to recruit and retain talented research scientists that EPA might not otherwise be able to attract.

The Agency also seeks to develop and verify improved tools, methodologies, and technologies for modeling, measuring, characterizing, preventing, controlling, and cleaning up contaminants associated with high priority human health and environmental problems. In order to do this, EPA will develop, evaluate, and deliver

technologies and approaches that eliminate, minimize, or control high-risk pollutants from multiple sectors. Emphasis will be placed on preventive approaches for industries and communities having difficulty meeting control/emission/effluent standards.

EPA's strategy for solving environmental problems and improving our system of environmental protection includes developing, implementing and institutionalizing new policy tools, collaborative community-based and sector-based strategies, and the capacity to experiment, test, and disseminate innovative ideas that result in better environmental outcomes. In each area, EPA is looking to advance the application of the innovative tool or approach by promoting broader testing into our system of environmental protection and to support collaborative partnerships for environmental management based upon prudent analysis and decision methodologies. For example, EPA's Sector Program Plan 2001-2005 sets forth a vision and specific actions to enhance the effectiveness of innovative sector activities (at the Federal and state levels) and to fully integrate sector approaches into the Agency's overall mission and core programs. Similarly, EPA is strengthening its capacity to evaluate innovative approaches and make institutional changes that adopt successful innovations.

EPA's community-based approach aims to provide integrated assessment tools and information and direct assistance for environmental protection in partnership with local, state, and Tribal governments. The work focuses on building the capacity of communities to work effectively at identifying and solving environmental issues in ways that support healthy local economies and improved quality of life.

Sector strategies complement current EPA activities by allowing the Agency to approach issues more holistically; tailor efforts to the particular characteristics of each sector; identify related groups of stakeholders with interest in a set of issues; link EPA's efforts with those of other agencies; and craft new approaches to environmental protection. EPA is building on successful experiences from its current sector-based programs such as the Sustainable Industries Partnership Programs, Design for the Environment, and sector-based compliance assistance programs to expand the ways in which the Agency is working in partnership with industry sectors to meet high environmental standards using flexible, innovative approaches. These innovative programs foster the development of innovations at the industry sector level, testing new regulatory ideas, technologies, tools, and incentives in non-adversarial settings. In a somewhat related effort, EPA is exploring the potential for broader use of a sector-based regulatory model for small businesses that was developed by Massachusetts.

### ***External Factors***

Strong science is predicated on the desire of the Agency to make human health and environmental decisions based on high-quality scientific data and information. This challenges the Agency to perform and apply the best available science and technical analyses when addressing health and environmental problems that adversely impact the United States. Such a challenge moves the Agency to a more integrated, efficient, and effective approach of reducing risks. As long as sound science is a central tenant for actions taken by the Agency, then external factors will have a minimal impact on the goal.

**Resource Summary**  
(Dollars in thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Sound Science, Improved Understanding of Env. Risk and Greater Innovation to Address Env. Problems</b>	<b>\$323,203.3</b>	<b>\$327,837.9</b>	<b>\$357,105.8</b>	<b>\$29,267.9</b>
Conduct Research for Ecosystem Assessment and Restoration.	\$110,817.6	\$119,114.6	\$122,885.5	\$3,770.9
Improve Scientific Basis to Manage Environmental Hazards and Exposures.	\$52,022.6	\$56,355.0	\$67,467.5	\$11,112.5
Enhance Capabilities to Respond to Future Environmental Developments.	\$61,427.7	\$50,965.8	\$68,911.4	\$17,945.6
Improve Environmental Systems Management.	\$54,429.8	\$52,274.1	\$45,446.9	(\$6,827.2)
Quantify Environmental Results of Partnership Approaches.	\$9,276.2	\$9,058.4	\$9,036.8	(\$21.6)
Incorporate Innovative Approaches.	\$26,070.7	\$29,787.9	\$31,939.0	\$2,151.1
Demonstrate Regional Capability to Assist Environmental Decision Making.	\$6,088.7	\$6,591.8	\$6,607.6	\$15.8
Conduct Peer Review to Improve Agency Decisions.	\$3,070.0	\$3,690.3	\$4,811.1	\$1,120.8
Total Workyears	992.2	996.3	1,006.2	9.9

## Objective 1: Conduct Research for Ecosystem Assessment and Restoration.

Provide the scientific understanding to measure, model, maintain, and/or restore, at multiple spatial scales, the present and future integrity of highly valued ecosystems.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Conduct Research for Ecosystem Assessment and Restoration.</b>	<b>\$110,817.6</b>	<b>\$119,114.6</b>	<b>\$122,885.5</b>	<b>\$3,770.9</b>
Environmental Program & Management	\$7,157.6	\$5,960.1	\$7,801.4	\$1,841.3
Hazardous Substance Superfund	\$0.0	\$21.6	\$2.1	(\$19.5)
Science & Technology	\$103,660.0	\$113,132.9	\$115,082.0	\$1,949.1
Total Workyears	350.0	350.9	346.6	-4.3

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Coastal Environmental Monitoring	\$7,325.3	\$7,671.2	\$7,801.1	\$129.9
Congressionally Mandated Projects	\$7,770.9	\$0.0	\$0.0	\$0.0
Ecosystems Condition, Protection and Restoration Research	\$66,707.9	\$67,202.1	\$68,407.6	\$1,205.5
Environmental Monitoring and Assessment Program, EMAP	\$32,360.0	\$38,259.6	\$38,873.3	\$613.7
Facilities Infrastructure and Operations	\$5,320.2	\$4,963.5	\$5,651.4	\$687.9
Homeland Security-Preparedness, Response and Recovery	\$65.5	\$0.0	\$0.0	\$0.0
Management Services and Stewardship	\$1,044.9	\$1,018.2	\$1,793.4	\$775.2
Planning and Resource Management	\$0.0	\$0.0	\$358.7	\$358.7

## Annual Performance Goals and Measures

### Research

#### Regional Scale Ecosystem Assessment Methods

In 2004 Provide Federal, state and local resource managers with a means to more effectively determine long-term trends in the condition and vitality of Eastern U.S. stream ecosystems through measurements of changes in the genetic diversity of stream fish populations.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
A study of fish genetic diversity that demonstrates the power of this emerging technology for evaluating condition and vitality of biotic communities to Federal, state and local resource managers.			1	report

Baseline: The development and application of new and more powerful methods to evaluate ecological integrity is central to many state and Federal assessment programs, including EPA's Environmental Monitoring and Assessment Program (EMAP) and Regional Vulnerability Assessment (ReVA) program. Technological progress in the fields of molecular biology and genetics have allowed, for the first time, the cost-effective analysis of patterns in the genetic diversity of aquatic populations over large regional scales. This genetic information brings new and powerful information to our understanding of aquatic ecosystems, including the identification of appropriate ecological assessment units, the linkages between environmental condition and population responses, and estimates of the future susceptibility of populations due to loss of genetic diversity. In FY 2004, a report will be prepared that summarizes the results of research on the genetic diversity of indicator fish species inhabiting wadeable streams in EMAP's Mid-Atlantic Integrated Assessment (MAIA) area, as well as in parts of Ohio that were evaluated as part of a regional EMAP assessment. This report will provide resource managers and the public with a more complete understanding of the present condition of these biological resources and their vulnerability to predicted environmental changes.

### Verification and Validation of Performance Measures

**FY 2004 Performance Measure:** A study of fish genetic diversity that demonstrates the power of this emerging technology for evaluating condition and vitality of biotic communities to Federal, state and local resource managers.

**Performance Database:** Program output; no internal tracking system

**Data Source:** N/A

**Methods, Assumptions and Suitability:** N/A

**QA/QC Procedures:** N/A

**Data Quality Reviews:** Report

**Data Limitations:** N/A

**Error Estimate:** N/A

**New/Improved Data or Systems:** N/A

**References:** N/A

#### Statutory Authorities

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

Toxic Substances Control Act

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Resource Conservation and Recovery Act (RCRA)

The Clean Air Act Amendment

The Safe Drinking Water Act

Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)

Clean Water Act (CWA) Title I (33 U.S.C 1251-1271)

## Objective 2: Improve Scientific Basis to Manage Environmental Hazards and Exposures.

Improve the scientific basis to identify, characterize, assess, and manage environmental hazards and exposures that pose the greatest health risks to the American public by developing models and methodologies to integrate information about exposures and effects from multiple pathways. This effort includes focusing on risks faced by susceptible populations, such as people differentiated by life stage (e.g., children and the elderly) and ethnic/cultural background.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Improve Scientific Basis to Manage Environmental Hazards and Exposures.</b>	<b>\$52,022.6</b>	<b>\$56,355.0</b>	<b>\$67,467.5</b>	<b>\$11,112.5</b>
Environmental Program & Management	\$3,409.1	\$2,937.3	\$3,663.1	\$725.8
Science & Technology	\$48,613.5	\$53,417.7	\$63,804.4	\$10,386.7
Total Workyears	172.6	176.0	180.4	4.4

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Congressionally Mandated Projects	\$731.3	\$0.0	\$0.0	\$0.0
Endocrine Disruptor Research	\$369.3	\$372.2	\$378.9	\$6.7
Facilities Infrastructure and Operations	\$2,656.7	\$2,505.1	\$2,979.1	\$474.0
Homeland Security-Preparedness, Response and Recovery	\$360.1	\$0.0	\$8,560.6	\$8,560.6
Human Health Research	\$47,225.6	\$51,824.5	\$53,633.9	\$1,809.4
Legal Services	\$51.0	\$54.8	\$57.2	\$2.4
Management Services and Stewardship	\$410.7	\$377.4	\$596.4	\$219.0
Planning and Resource Management	\$0.0	\$0.0	\$30.4	\$30.4
Research to Support FQPA	\$1,217.0	\$1,221.0	\$1,231.0	\$10.0



## Annual Performance Goals and Measures

### Research

#### Human Health Risk Assessment Research

In 2004      Contribute to protecting children from harmful environmental agents in their daily lives by providing risk assessors and managers with better data on children's aggregate exposures in their homes and daycare settings, and improved exposure factors for estimating children's risk.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
External review draft of an updated Exposure Factors Handbook for Children, incorporating new data from EPA studies			1	review draft
Analysis of the "Children Total Exposure to Pesticides and Persistent Organic Pollutants (including EDCs) Study" to estimate aggregate exposures and identify critical exposure factors.			1	report

Baseline:      Current risk assessments for children are severely hampered by a lack of exposure data and by exposure factors that are insufficient for describing how exposures change as children grow up and alter their activities. This research will provide significant new data on children's exposures to a wide range of environmental pollutants as they go about their daily lives, focusing on exposures in their homes and/or in daycare centers. The updated exposure factors will be more reliable, since they will incorporate more complete and better data and approaches to describe children's exposures to environmental pollutants. The data and factors developed in FY 2004 will significantly improve the reliability of the estimates of children's exposure and risk used by regulatory decision-makers throughout EPA.

#### Homeland Security - Rapid Risk Assessment

In 2004      Provide a database of EPA experts on topics of importance to assessing the health and ecological impacts of actions taken against homeland security that is available to key EPA staff and managers who might be called upon to rapidly assess the impacts of a significant terrorist event.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
A restricted access database of EPA experts with knowledge, expertise, and experience for use by EPA to rapidly assess health and ecological impacts focused on safe buildings and water security.			1	database

Baseline:      The attacks on the Pentagon and World Trade Center, and the subsequent mailing of anthrax-contaminated letters, were unprecedented events in United States history. Other such events could occur in the future, or a totally different type of an attack might be conducted by a terrorist group or individual. The human health and ecological consequences of such events cannot be known before they happen. It is clear, however, that both human health and the environment will be impacted, either directly or as a result of efforts to contain, decontaminate, or dispose of materials from such events. It is essential that information on human health and ecological risks be developed as quickly as possible to help inform the relevant EPA personnel who can then share that information with public officials and the affected individuals. Such assessments must be conducted recognizing that in many instances supporting technical data will be limited. No current database is available that identifies those individuals within EPA that have the knowledge, experience, and expertise to address risk assessment issues such as source characterization, hazard identification, dose-response assessment, exposure assessment, and risk characterization in a short time frame. The database that will be completed in FY 2004 will allow EPA to develop a quick-response capability to future events so that assessments of human health and ecological impacts can be conducted rapidly. The database is being developed in support of EPA's Draft Strategic Plan for Homeland Security and is focused on the rapid risk assessment tactic described in the strategy.

#### SOE Report - Human Health Indicators Research

In 2004      Develop a prioritized slate of potential human health indicators that improve EPA's ability to measure environmental progress using direct outcome measures (e.g., improvements in human health) and are appropriate for supporting State of the Environment Reports.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Produce a workshop report on the state of human health indicators to determine areas in which future research is needed.			1	workshop report
Baseline:	In Nov 2001, the EPA Administrator gave direction to gather and develop information to help the EPA determine where we are and where we need to go to make sound strategic decisions regarding human health and environmental conditions. To accomplish this task, a document entitled the State of the Environment Report will be produced, backed by a scientifically-based technical support document. The selection and use of the most appropriate indicators that will be described in the technical support document is dependent on the information gained, exchanged and shared at a workshop specifically designed to assess the current state of knowledge and future needs in the area of human health indicator research.			
Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
A restricted access database of EPA experts with knowledge, expertise, and experience for use by EPA to rapidly assess health and ecological impacts focused on safe buildings and water security.			1	database
Baseline:	The attacks on the Pentagon and World Trade Center, and the subsequent mailing of anthrax-contaminated letters, were unprecedented events in United States history. Other such events could occur in the future, or a totally different type of an attack might be conducted by a terrorist group or individual. The human health and ecological consequences of such events cannot be known before they happen. It is clear, however, that both human health and the environment will be impacted, either directly or as a result of efforts to contain, decontaminate, or dispose of materials from such events. It is essential that information on human health and ecological risks be developed as quickly as possible to help inform the relevant EPA personnel who can then share that information with public officials and the affected individuals. Such assessments must be conducted recognizing that in many instances supporting technical data will be limited. No current database is available that identifies those individuals within EPA that have the knowledge, experience, and expertise to address risk assessment issues such as source characterization, hazard identification, dose-response assessment, exposure assessment, and risk characterization in a short time frame. The database that will be completed in FY 2004 will allow EPA to develop a quick-response capability to future events so that assessments of human health and ecological impacts can be conducted rapidly. The database is being developed in support of EPA's Draft Strategic Plan for Homeland Security and is focused on the rapid risk assessment tactic described in the strategy.			

#### SOE Report - Human Health Indicators Research

In 2004	Develop a prioritized slate of potential human health indicators that improve EPA's ability to measure environmental progress using direct outcome measures (e.g., improvements in human health) and are appropriate for supporting State of the Environment Reports.			
Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Produce a workshop report on the state of human health indicators to determine areas in which future research is needed.			1	workshop report
Baseline:	In Nov 2001, the EPA Administrator gave direction to gather and develop information to help the EPA determine where we are and where we need to go to make sound strategic decisions regarding human health and environmental conditions. To accomplish this task, a document entitled the State of the Environment Report will be produced, backed by a scientifically-based technical support document. The selection and use of the most appropriate indicators that will be described in the technical support document is dependent on the information gained, exchanged and shared at a workshop specifically designed to assess the current state of knowledge and future needs in the area of human health indicator research.			

#### Verification and Validation of Performance Measures

**FY 2004 Performance Measure:** Produce a workshop report on the state of human health indicators to determine where future research is needed.

**Performance Database:** Program output; no internal tracking system

**Data Source:** N/A

**Methods, Assumptions and Suitability:** N/A

**QA/QC Procedures:** N/A

**Data Quality Reviews:** Report

**Data Limitations:** N/A

**Error Estimate:** N/A

**New/Improved Data or Systems:** N/A

**References:** N/A

**FY 2004 Performance Measure:** External review draft of an updated Exposure Factors Handbook for Children, incorporating new data from EPA studies.

**Performance Database:** Program output; no internal tracking system

**Data Source:** N/A

**Methods, Assumptions and Suitability:** N/A

**QA/QC Procedures:** N/A

**Data Quality Reviews:** Draft report

**Data Limitations:** N/A

**Error Estimate:** N/A

**New/Improved Data or Systems:** N/A

**References:** N/A

**FY 2004 Performance Measure:** Analysis of the "Children Total Exposure to Pesticides and Persistent Organic Pollutants (including EDCs) Study" to estimate aggregate exposures and identify critical exposure factors.

**Performance Database:** Program output; no internal tracking system

**Data Source:** N/A

**Methods, Assumptions and Suitability:** N/A

**QA/QC Procedures:** N/A

**Data Quality Reviews:** Report

**Data Limitations:** N/A

**Error Estimate:** N/A

**New/Improved Data or Systems:** N/A

**References:** N/A

**FY 2004 Performance Measure:** Deliver a restricted-access, database of EPA experts with knowledge, expertise, and experience for use by EPA Program Offices and Regions to rapidly assess health and ecological impacts focused on safe buildings and water security.

**Performance Database:** Program output; no internal tracking system

**Data Source:** N/A

**Methods, Assumptions and Suitability:** N/A

**QA/QC Procedures:** N/A

**Data Quality Reviews:** Database

**Data Limitations:** N/A

**Error Estimate:** N/A

**New/Improved Data or Systems:** N/A

**References:** N/A

**Statutory Authority**

Clean Air Act (CAA)

Safe Drinking Water Act (SDWA)

Clean Water Act (CWA)

Toxics Substances Control Act (TSCA)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Resources Conservation and Recovery Act (RCRA)

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

Superfund Amendments Reauthorization Act (SARA)

Food Quality Protection Act (FQPA)

### Objective 3: Enhance Capabilities to Respond to Future Environmental Developments.

Enhance EPA's capabilities to anticipate, understand, and respond to future environmental developments; conduct research in areas that combine human health and ecological considerations; and enhance the Agency's capacity to evaluate the economic costs and benefits and other social impacts of environmental policies.

#### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Enhance Capabilities to Respond to Future Environmental Developments.</b>	<b>\$61,427.7</b>	<b>\$50,965.8</b>	<b>\$68,911.4</b>	<b>\$17,945.6</b>
Environmental Program & Management	\$10,877.7	\$10,008.5	\$11,027.1	\$1,018.6
Science & Technology	\$50,550.0	\$40,957.3	\$57,884.3	\$16,927.0
Total Workyears	169.2	152.6	166.7	14.1

#### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Congressionally Mandated Projects	\$3,753.8	\$0.0	\$0.0	\$0.0
Endocrine Disruptor Research	\$10,353.1	\$11,806.5	\$11,538.8	(\$267.7)
Facilities Infrastructure and Operations	\$2,267.8	\$2,177.2	\$2,758.3	\$581.1
Homeland Security-Preparedness, Response and Recovery	\$1,587.6	\$0.0	\$0.0	\$0.0
Management Services and Stewardship	\$327.7	\$299.1	\$633.3	\$334.2
Regulatory Development	\$7,552.3	\$7,532.2	\$7,635.5	\$103.3
Research to Support Emerging Issues	\$28,658.5	\$29,150.8	\$41,470.5	\$12,319.7
STAR Fellowships Program	\$9,748.7	\$0.0	\$4,875.0	\$4,875.0

#### Annual Performance Goals and Measures

##### Research

Research to Support the SOE Report

In 2004 Produce a technical report assessing the condition of environmental resources and human health, providing the scientific foundation for a State of the Environment Report and information on areas requiring further scientific data to make sound decisions on protecting human and environmental health.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Produce a technical report on the state of environmental indicators, from which the SOE technical chapters will be developed.			1	tech report

Baseline: In Nov 2001, the EPA Administrator gave direction to gather and develop information to help the EPA determine where we are and where we need to go to make sound strategic decisions regarding human health and environmental conditions. To accomplish this task, a document entitled the State of the Environment Report will be produced, backed by a scientifically-based technical support document. This technical support document will incorporate baseline data and will track changes in air and water quality, food and drinking water safety, waste management and recycling, in addition to tracking national public health and environmental conditions and trends.

### Computational Toxicology

In 2004 Develop a computational toxicology research strategy that provides the framework for research that will help fill major data gaps for a large number of chemical testing programs and reduce the cost and use of animal testing.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Produce a computational toxicology research strategy.			1	strategy

Baseline: The objective of the Computational Toxicology Initiative is to integrate modern computing and information technology with molecular biology to improve the Agency's prioritization of data requirements and risk assessment of chemicals. The ultimate goal of computational toxicology research is to demonstrate the feasibility of setting mechanistically-based priorities for chemical risk assessment and to optimize in vivo and in vitro testing requirements through the use of computational methods and molecular profiling afforded by the advances in emerging technologies such as proteomics and genomics. The Computational Toxicology Initiative will require the development of a research strategy to outline research priorities and themes that EPA should pursue over the next 5-10 years. In FY 2004, EPA will produce a research strategy that identifies major research gaps and approaches for the development of EPA's computational toxicology research. The Computational Toxicology Initiative started in FY2003 and involves research to evaluate key assumptions in the approach using endocrine-disrupting chemicals. Based on principles derived from these studies, the scope of the initiative will be widened to include other chemical classes starting in FY 2004.

### Verification and Validation of Performance Measures

**FY 2004 Performance Measure: Produce a technical report on the state of environmental indicators from which the SOE technical chapters will be developed.**

**Performance Database:** Program output; no internal tracking system

**Data Source:** N/A

**Methods, Assumptions and Suitability:** N/A

**QA/QC Procedures:** N/A

**Data Quality Reviews:** Technical report

**Data Limitations:** N/A

**Error Estimate:** N/A

**New/Improved Data or Systems:** N/A

**References:** N/A

**FY 2004 Performance Measure:** Produce a computational toxicology research strategy.

**Performance Database:** Program output; no internal tracking system

**Data Source:** N/A

**Methods, Assumptions and Suitability:** N/A

**QA/QC Procedures:** N/A

**Data Quality Reviews:** Strategy

**Data Limitations:** N/A

**Error Estimate:** N/A

**New/Improved Data or Systems:** N/A

**References:** N/A

**Statutory Authorities**

Clean Air Act (CAA) and amendments

Environmental Research, Development and Demonstration Act (ERDDA)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Toxic Substances Control Act (TSCA)

Food Quality Protection Act (FQPA) of 1996

Safe Drinking Water Act (SDWA) and amendments

Toxic Substances Control Act, sections 4, 5, and 6 (15 U.S.C. 2603, 2604, and 2605)

Clean Water Act sections 304 and 308 (33 U.S.C. 1312, 1314, 1318, 1329-1330, 1443)

Safe Drinking Water Act section 1412 (42 U.S.C. 210, 300g-1)

Resource Conservation and Recovery Act/HSWA: (33 U.S.C. 40(IV)(2761), 42 U.S.C. 82(VIII)(6981-6983))

Clean Air Act: 42 U.S.C. 85(I)(A)(7403, 7412, 7429, 7545, 7612)

Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 103(III)(9651)

Pollution Prevention Act (42 U.S.C. 13101-13109)

Federal Technology Transfer Act

## Objective 4: Improve Environmental Systems Management.

Provide tools and technologies to improve environmental systems management while continuing to prevent and control pollution and reduce human health and ecological risks originating from multiple economic sectors.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Improve Environmental Systems Management.</b>	<b>\$54,429.8</b>	<b>\$52,274.1</b>	<b>\$45,446.9</b>	<b>(\$6,827.2)</b>
Environmental Program & Management	\$5,418.2	\$2,706.1	\$3,270.6	\$564.5
Hazardous Substance Superfund	\$419.5	\$2,468.0	\$743.0	(\$1,725.0)
Science & Technology	\$48,592.1	\$47,100.0	\$41,433.3	(\$5,666.7)
Total Workyears	145.1	146.6	143.0	-3.6

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Congressionally Mandated Projects	\$13,512.1	\$0.0	\$0.0	\$0.0
Environmental Technology Verification (ETV)	\$3,607.7	\$3,617.6	\$3,682.0	\$64.4
Facilities Infrastructure and Operations	\$2,290.0	\$2,084.0	\$2,352.3	\$268.3
Homeland Security-Preparedness, Response and Recovery	\$40.4	\$1,875.0	\$625.0	(\$1,250.0)
Legal Services	\$251.9	\$270.7	\$282.2	\$11.5
Management Services and Stewardship	\$382.0	\$351.4	\$636.1	\$284.7
Research to Support Pollution Prevention	\$37,672.9	\$44,075.4	\$37,869.3	(\$6,206.1)

### Annual Performance Goals and Measures



**Research****New Technologies**

- In 2004      Verify 35 air, water, greenhouse gas, and monitoring technologies so that States, technology purchasers, and the public will have highly credible data and performance analyses on which to make technology selection decisions.
- In 2003      Develop 10 testing protocols and complete 40 technology verifications for a cumulative Environmental Technology Verification (ETV) program total of 230 to aid industry, states, and consumers in choosing effective technologies to protect the public and environment from high risk pollutants.
- In 2002      EPA formalized generic testing protocols for technology performance verification, and provided additional performance verifications of pollution prevention, control and monitoring technologies in all environmental media.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Complete 20 stakeholder approved and peer-reviewed test protocols in all environmental technology categories under ETV, and provide them to testing organizations world-wide.	20			protocols
Verify and provide information to States, technology purchasers, and the public on 40 air, water, pollution prevention and monitoring technologies for an ETV programmatic total of 230 verifications.		40		verifications
Complete an additional 10 stakeholder approved and peer-reviewed test protocols in all environmental technology categories under ETV, and provide them to international testing organizations.		10		protocols
Through the ETV program, verify the performance of 35 commercial-ready environmental technologies.			35	verifications
<p>Baseline:      Actual environmental risk reduction is directly related to performance and effectiveness of environmental technologies purchased and used. Private sector technology developers produce almost all the new technologies purchased in the US and around the world. Purchasers and permittees of environmental technologies need an independent, objective, high quality source of performance information in order to make more informed decisions; and vendors with innovative, improved, faster and cheaper environmental technologies need a reliable source of independent evaluation to be able to penetrate the environmental technology market. In FY 2004, the Environmental Technology Verification (ETV) program will verify 35 additional technologies for a programmatic total of over 250 verifications, making data on their pending performance available for public use as well.</p>				

**Verification and Validation of Performance Measures**

**FY 2004 Performance Measure:** Through the Environmental Technology Verification (ETV) program, verify the performance of 35 commercial-ready environmental technologies.

**Performance Database:** Program output; no internal tracking system

**Data Source:** N/A

**Methods, Assumptions and Suitability:** N/A

**QA/QC Procedures:**

Verifications consist of the following steps:

- 1)      based on generic verification protocols if available, the specific test/QA plan for each product is developed and agreed to by EPA, the testing partner, and the vendors;
- 2)      the product is tested using the procedures outlined in the test/QA plan;

- 3) audits of the test event are conducted by EPA and the partners, and rigorous QA evaluations of the resulting test data are performed;
- 4) after testing and analysis, the partner drafts the verification statements and reports which are reviewed by EPA, the participating vendors, and peer reviewers; and
- 5) after addressing review comments and receiving approval from EPA management, EPA and the partner sign the verification statements.

**Data Quality Reviews:** Verifications

**Data Limitations:** N/A

**Error Estimate:** N/A

**New/Improved Data or Systems:** N/A

**References:** N/A

**Statutory Authorities**

Clean Air Act

Safe Drinking Water Act

Clean Water Act

Toxic Substances Control Act

Federal Insecticide, Fungicide, and Rodenticide Act

Resource Conservation and Recovery Act

Superfund Amendments Reauthorization Act

Clean Air Act Amendments of 1990

Pollution Prevention Act of 1990

## Objective 5: Quantify Environmental Results of Partnership Approaches.

Increase partnership-based projects with counties, cities, states, tribes, resource conservation districts, and/or bioregions, bringing together needed external and internal stakeholders, and quantify the tangible and sustainable environmental results of integrated, holistic, partnership approaches.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Quantify Environmental Results of Partnership Approaches.</b>	<b>\$9,276.2</b>	<b>\$9,058.4</b>	<b>\$9,036.8</b>	<b>(\$21.6)</b>
Environmental Program & Management	\$9,276.2	\$9,058.4	\$9,036.8	(\$21.6)
Total Workyears	20.6	18.0	16.6	-1.4

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Congressionally Mandated Projects	\$700.0	\$0.0	\$0.0	\$0.0
Facilities Infrastructure and Operations	\$215.6	\$241.9	\$222.6	(\$19.3)
Legal Services	\$47.3	\$53.3	\$55.4	\$2.1
Management Services and Stewardship	\$100.6	\$112.1	\$3.1	(\$109.0)
Regional Geographic Program	\$7,609.2	\$8,651.1	\$8,755.7	\$104.6

### Statutory Authorities

Multi-Media

## Objective 6: Incorporate Innovative Approaches.

Incorporate innovative approaches to environmental management into EPA programs, so that EPA and external partners achieve greater and more cost-effective public health and environmental protection.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Incorporate Innovative Approaches.</b>	<b>\$26,070.7</b>	<b>\$29,787.9</b>	<b>\$31,939.0</b>	<b>\$2,151.1</b>
Environmental Program & Management	\$25,720.7	\$29,787.9	\$31,939.0	\$2,151.1
Science & Technology	\$350.0	\$0.0	\$0.0	\$0.0
Total Workyears	112.9	126.7	127.4	0.7

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Common Sense Initiative	\$1,838.7	\$0.0	\$0.0	\$0.0
Congressionally Mandated Projects	\$1,000.0	\$0.0	\$0.0	\$0.0
Facilities Infrastructure and Operations	\$1,784.4	\$1,821.7	\$2,143.8	\$322.1
Legal Services	\$380.3	\$409.3	\$427.1	\$17.8
Management Services and Stewardship	\$186.1	\$168.7	\$244.0	\$75.3
Performance Track	\$1,834.6	\$1,834.6	\$1,834.6	\$0.0
Regulatory Development	\$13,251.3	\$22,429.6	\$24,140.8	\$1,711.2
Small Business Ombudsman	\$3,049.1	\$3,124.0	\$3,148.7	\$24.7

### Statutory Authorities

National Environmental Policy Act  
The Economy Act of 1932  
Toxic Substances Control Act sections 4, 5, and 6 (15 U.S.C. 2603, 2604, and 2605)  
Pollution Prevention Act (42 U.S.C. 13101-13109)  
Clean Water Act

## Objective 7: Demonstrate Regional Capability to Assist Environmental Decision Making.

Demonstrate regional capability to assist environmental decision-making by assessing environmental conditions and trends, health and ecological risks, and the environmental effectiveness of management action in priority geographic areas.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Demonstrate Regional Capability to Assist Environmental Decision Making.</b>	<b>\$6,088.7</b>	<b>\$6,591.8</b>	<b>\$6,607.6</b>	<b>\$15.8</b>
Environmental Program & Management	\$3,284.8	\$3,647.1	\$3,662.9	\$15.8
Hazardous Substance Superfund	\$2,803.9	\$2,944.7	\$2,944.7	\$0.0
Total Workyears	2.0	3.0	3.0	0.0

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Facilities Infrastructure and Operations	\$156.1	\$43.6	\$50.8	\$7.2
Management Services and Stewardship	\$2.2	\$1.7	\$2.9	\$1.2
Regional Science and Technology	\$3,574.9	\$3,601.8	\$3,609.2	\$7.4
Superfund Remedial Actions	\$2,944.7	\$2,944.7	\$2,944.7	\$0.0

### Statutory Authorities

Multi-Media

## Objective 8: Conduct Peer Review to Improve Agency Decisions.

Conduct peer reviews and provide other guidance to improve the production and use of the science underlying Agency decisions.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
<b>Conduct Peer Review to Improve Agency Decisions.</b>	<b>\$3,070.0</b>	<b>\$3,690.3</b>	<b>\$4,811.1</b>	<b>\$1,120.8</b>
Environmental Program & Management	\$3,070.0	\$3,690.3	\$4,811.1	\$1,120.8
Total Workyears	19.8	22.5	22.5	0.0

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Facilities Infrastructure and Operations	\$340.2	\$326.5	\$383.4	\$56.9
Management Services and Stewardship	\$14.9	\$11.3	\$18.7	\$7.4
Science Advisory Board	\$2,887.8	\$3,352.5	\$4,409.0	\$1,056.5

### Statutory Authorities

Federal Advisory Committee Act (5 U.S.C. App.)

Environmental Research, Development, and Demonstration Authorization Act of 1978

Clean Air Act of 1977 and 1990.